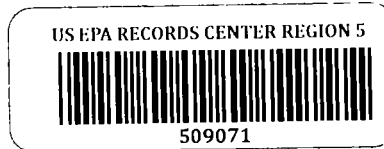
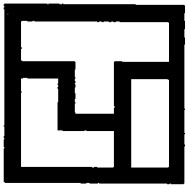


S. Estes



20 NORTH WACKER DRIVE, SUITE 1260, CHICAGO, IL 60606

TECHLAW INC.

PHONE: (312) 578-8900
FAX: (312) 578-8904

RZ2.R05020.01.ID.298

September 24, 1998

Mr. Brian Freeman
U.S. Environmental Protection Agency
Region 5 DE-9J
77 West Jackson Boulevard
Chicago, Illinois 60604

Reference: EPA Contract No. 68-W4-0006; Work Assignment No. R05020; Quality Assurance Project Plan Screening and Development; Cozzi Iron and Metals, Inc., Chicago, Illinois; EPA ID No. ILD047581335; Site-Specific Field Sampling and Analysis Plan; Task 05 Deliverable

Dear Mr. Freeman:

Please find enclosed TechLaw's Site-Specific Field Sampling and Analysis Plan (SAP) for sampling activities proposed at the following three Cozzi Iron and Metal, Inc., (Cozzi) facilities in Chicago, Illinois: 2500 South Paulina Street, 9331 South Ewing Street and 1509 West Courtland Street. Please note that although there are seven Cozzi facilities, environmental samples will be collected at only the three Cozzi facilities listed. The Cozzi facility located at 2232 South Blue Island Avenue in Chicago, Illinois, is the site of Cozzi's offices; no facility operations occur at this address. During the RCRA and TSCA site inspections conducted by the U.S. EPA, no contamination was visually observed at the following two facilities: 3200 East 96th Street and 350 North Artesian Street. The Cozzi facility at 3151 South California Street was inspected previously, at which time environmental samples were collected. Five of the six samples collected at the facility were found to contain polychlorinated biphenyls (PCBs) in excess of 50 parts per million.

In order to provide comparable results from the three Cozzi facilities, a single draft SAP has been prepared to guide sampling at all three facilities. This SAP was prepared based on the Follow-up and Planning for Sampling Inspections Meeting held at U.S. EPA, Region 5 offices at 77 West Jackson Boulevard in Chicago, Illinois, on August 6, 1998.

The attached SAP contains procedures for the collection of waste, soil, surface water and sediment samples. The purpose of this sampling is to determine whether the wastes stored at Cozzi facilities contain hazardous constituents and whether hazardous materials have impacted



Mr. Brian Freeman
Page 2
September 24, 1998

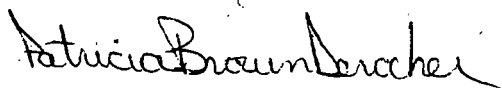
the environmental media at the sites. Hazardous constituents potentially present at the Cozzi facilities include heavy metals, PCBs, volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs).

Sampling is anticipated to begin on or about September 29, 1998, and continue for approximately four days.

Based on available information, the SAP indicates that the environmental samples collected will be analyzed for Toxicity Characteristic Leaching Procedure (TCLP) metals and VOCs, SVOCs, and ignitability. As outlined in the attached SAP, not all samples will be analyzed for all constituents. TechLaw will use SW-846 Method 5035 for the collection of soil samples for VOC using an EnCore™ sampling device in accordance with TechLaw's Standard Operating Procedure (SOP). TechLaw's SOP for this method is currently in draft form; however, it is anticipated that the SOP will be finalized by the time this SAP is finalized. U.S. EPA TSCA personnel will collect samples for PCB analyses from the Cozzi facilities.

If you have any questions, please contact me or Mr. Jeff Raines, the TechLaw Technical Lead, at (312) 345-8968. Thank you for the opportunity for TechLaw to provide these services to the U.S. EPA.

Sincerely,



Patricia Brown-Derocher
Regional Manager

Enclosure

cc: F. Norling, U.S. EPA, Region 5 (w/o attachment)	Mary McAuliffe, U.S. EPA, Region 5
G. Opek, U.S. EPA, Region 5	W. Jordan, Central Files
K. Zolnierczyk, U.S. EPA, Region 5	J. Raines
Sherry Estes, U.S. EPA, Region 5	Chicago Central Files

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TECHLAW INC.

**SITE SPECIFIC SAMPLING AND ANALYSIS PLAN
COZZI IRON AND METAL, INC.
CHICAGO, ILLINOIS
EPA ID NO. ILD047581335**

TASK 05 DELIVERABLE

Submitted to:

**Mr. Brian Freeman
U.S. Environmental Protection Agency
Region 5 DE-9J
77 West Jackson Boulevard
Chicago, Illinois 60604**

Submitted by:

**TechLaw, Inc.
20 North Wacker Drive, Suite 1260
Chicago, Illinois 60606**

EPA Work Assignment No.	R05020
Contract Number	68-W4-0006
TechLaw WAM	Patricia Brown-Derocher
Telephone No.	(312) 345-8963
EPA WAM	Brian Freeman
Telephone No.	(312) 353-2720

September 24, 1998

**SITE SPECIFIC SAMPLING AND ANALYSIS PLAN
COZZI IRON AND METAL, INC.
CHICAGO, ILLINOIS
EPA ID NO. ILD047581335**

The following constitutes the Site-Specific Field Sampling and Analysis Plan (SAP) for the waste, soil, surface water and sediment sampling to be performed at three Cozzi Iron and Metal, Inc., (Cozzi) facilities in Chicago, Illinois. These three facilities are:

2500 South Paulina Street (EPA ID No. ILD047581335);
9331 South Ewing Street; and
1509 West Cortland Street.

Cozzi operates a total of seven facilities in the Chicago area. However, based on prior RCRA and Toxic Substances Control Act (TSCA) site inspections, the following four facilities were determined not to warrant sampling at this time:

3200 East 96th Street;
3151 South California Street;
2232 South Blue Island Avenue; and
350 North Artesian Avenue.

Sampling activities will be initiated on or about September 29, 1998, and are expected to continue for approximately four days. The schedule outlined in this SAP may change due to variables (e.g., weather, equipment related delays) associated with field sampling work.

Determination of potential contaminants at the Cozzi facilities is based on available information regarding automobile shredder facilities, RCRA site inspections conducted on August 4 and 5, 1998, and the TSCA site inspections conducted the week of August 10, 1998.

This SAP will be used in conjunction with TechLaw's U.S. Environmental Protection Agency (U.S. EPA), Region 5-approved Generic Quality Assurance Project Plan (QAPP) for Sampling Operations, dated March 1995. Tentatively, TechLaw has selected the Curtis and Tompkins, Ltd., (CTL) laboratory in Berkeley, California, to perform the analyses required under this SAP.

Purpose and Objective

This SAP has been prepared to allow for the collection and analysis of waste, soil, surface water and sediment samples from three Cozzi facilities. The purpose of this sampling is to determine whether the wastes stored at Cozzi facilities contain hazardous constituents and whether hazardous materials have impacted the environmental media at the Cozzi facilities. Hazardous constituents potentially present at the Cozzi facilities include heavy metals, petroleum

hydrocarbons, polychlorinated biphenyls (PCBs), volatile organic compounds (VOCs) and semivolatile organic compounds (SVOCs). Per direction of the U.S. EPA, samples will not be analyzed for PCBs; U.S. EPA TSCA personnel will collect PCB samples from the Cozzi facilities. Tables 1 and 2 of this SAP present information that identifies the number of samples, sampling intervals, field and laboratory parameters, analytical methods, recommended sample containers, matrices, holding times and preservatives for this sampling activity.

Background Information

Cozzi maintains four shredding facilities: 9331 South Ewing Street, 2500 South Paulina Street, 350 North Artesian Avenue and 3151 South California Street. These facilities separate ferrous materials from non-ferrous materials. The non-ferrous materials, which consist of aluminum, brass, copper, stainless steel, zinc and non-metallic residue, are shipped to the 3200 East 96th Street facility (also known as the rail yard) for further processing to separate the recyclable material from the non-recyclable material. According to Cozzi, the non-recyclable material (i.e., autofluff) is generated only at the rail yard facility. This material is shipped offsite daily to a licensed special waste landfill. Although Cozzi is authorized to dispose of autofluff at two landfills in Illinois, Cozzi reportedly only ships autofluff to landfills in Michigan, Wisconsin and Indiana.

Metallic components, automobiles, white goods and miscellaneous metallic scrap are weighed and inspected for non-punctured gasoline tanks, hazardous materials (e.g., compressed gas tanks) and other materials that may damage the shredder (e.g., large rocks, vaults). Automobiles that have non-punctured gasoline tanks are not accepted by the facility. Passed materials are fed into the shredder. No attempt is made to drain oil-pans or transmission pans prior to feeding cars into the shredder.

The shredders at the four facilities generate two piles. One pile consists of fist-sized pieces of ferrous materials that are shipped directly to steel mills. The other, smaller pile consists of non-ferrous shredder residue (NFSR). The NFSR consists of aluminum, brass, copper, stainless-steel, zinc, cloth, foam rubber, paper, rocks, dirt and other non-magnetic material, as well as ferrous materials not separated out by the shredder. The NFSR is stored on a concrete pad prior to being transported to the rail yard facility for further processing. At the rail yard facility, the NFSR is passed between two powerful magnets, which pull out the ferrous materials that the shredder at the shredding facilities did not remove. This material is shipped back to the four shredding facilities. The remainder of the NFSR is processed through an Eddy Current separation system that separates the NFSR into three size ranges and then separates the non-ferrous metals from the autofluff within the three size ranges. Once the non-ferrous metals have been separated from the NFSR, the remaining material is autofluff. The Eddy Current separation system produces this autofluff in three size ranges. No more than 400 cubic yards of autofluff is stored at the rail yard facility at any given time.

The ferrous materials that are separated out at the rail yard facility are shipped back to the shredding facility for further processing. It does not appear that Cozzi attempts to separate materials from each of the four shredding facilities to ensure that materials from each of the facilities goes back to the facility where it originated. At the shredding facilities, the ferrous materials from the rail yard facility, which reportedly contains 75 to 85 percent metal, are stored in piles on the ground. The ferrous materials are reprocessed separately from new materials in the shredder. The non-ferrous portions of this second cycle material contain 2 to 5 percent non-ferrous metals (i.e., 95 to 98 percent autofluff). Cozzi then transports the piles back to the rail yard facility for final processing.

Waste Sampling

Waste samples will be collected from two Cozzi facilities.

- **2500 South Paulina Street**

One waste sample will be collected from the 1,000- to 2,000-gallon aboveground storage tank (AST) that contains waste oil at Yard No. 1 using a new disposable bailer. The waste will be placed into one 4-ounce glass jar and one 1-Liter amber glass jar. At Yard No. 2, a waste sample will be collected, if possible, using a ponar dredge from the sewer that receives hydraulic oil waste from the metal shear. The waste will be placed into one 4-ounce glass jar and one 1-Liter amber glass jar. A waste sample will also be collected from the concrete containment drain in the shear hydraulic pump room using a stainless steel spoon. The waste will be placed into one 4-ounce glass jar and one 1-Liter amber glass jar. A cut-off disposable bailer will be used to collect a sample from the waste gasoline tank in Yard 10. If it appears that the gasoline contains significant quantities of water (i.e., that the gasoline is a waste) a sample of the gasoline will be collected in a 4-ounce glass jar. This sample, if collected, will be transported by surface vehicle to the U.S. EPA Central Regional Laboratory for flash point testing. Under no circumstances will this sample be shipped by air courier.

- **9331 South Ewing Street**

One waste sample will be collected from the sludge in the abandoned clarifier using a ponar dredge. The waste will be placed into two 4-ounce glass jars. A waste sample will be collected from a pile of visually contaminated oil dry in the site maintenance facility using a stainless steel spoon. Currently, this material is being disposed as non-hazardous solid waste. The waste will be placed into two 4-ounce glass jars.

The samples will be analyzed for the constituents shown in Table 1 using the methods shown in Table 2. These analyses were selected based on knowledge of the process that generated the waste and consultation with the U.S. EPA Technical Leads, Mr. George Opek and Mr. Ken Zolnierczyk.

Waste samples will be collected using the sampling equipment listed in Table 3. Samples will be containerized in the appropriate preservative free sample containers listed in Table 2. The waste samples will be packaged and shipped to CTL in Berkeley, California, in accordance with the shipping and custody procedures outlined in the TechLaw U.S. EPA, Region 5-approved Generic QAPP.

The physical description of each waste sample will be recorded in a field log book. Sample times, location and requested laboratory analyses also will be recorded in the field log book and on the chain-of-custody (COC) form. Sample labels and sample tags will be completed and attached to the sample containers in accordance with the TechLaw U.S. EPA, Region 5-approved Generic QAPP.

Soil Sampling

Soil samples will be collected from three Cozzi facilities.

- **2500 South Paulina Street**

One soil sample will be collected at Yard No. 1 from the stained area adjacent to the 1,000- to 2,000-gallon AST containing waste oil. At Yard No. 2, one soil sample will be collected from the unlined drainage ditch that drains hydraulic fluids and other waste fluids from the metal shear to a hole that appears to be a sewer with an unknown discharge point. Up to three soil samples will be collected from the open dump area at Yard No. 10.

- **9331 South Ewing Street**

Up to three soil samples will be collected from the area of the facility adjacent to the Chicago River where the surface water runoff from the facility pools and either evaporates or drains into the river.

- **1509 West Cortland Street**

One to two soil samples will be collected from the area of the facility adjacent to the Chicago River where the surface water runoff from the facility pools and either evaporates or drains into the river. In addition, one to two soil samples will be collected from the bank of the settling pond. One duplicate sample and one matrix spike/matrix spike duplicate (MS/MSD) sample will be collected at this location.

The soil samples will be collected to determine whether the soil at these facilities have been contaminated with hazardous constituents. The samples will be analyzed for the constituents shown in Table 1. Soil samples that will be collected for VOC analysis will be collected using EnCore™ sampling devices (three 25-gram EnCores™ per sample) in accordance with SW-846 Method 5035 following the attached Draft TechLaw SOP for this procedure. Prior to the collection of the VOC soil sample, surface vegetation and debris from the area to be sampled will be removed using a decontaminated stainless steel spoon.

After sample collection, all of the soil samples will be packaged and shipped to CTL in Berkeley, California, in accordance with the shipping and custody procedures outlined in the TechLaw U.S. EPA, Region 5-approved Generic QAPP. If the EnCore™ devices cannot be used to collect the soil samples, the soil samples will be collected in 4-ounce jars that are packed so that no headspace is present.

The physical description and depth of collection for each soil sample will be recorded in the field log book. Sample times, locations and requested laboratory analyses also will be recorded in the field log book and on the COC form. Sample labels and sample tags will be completed and attached to the sample containers in accordance with the TechLaw U.S. EPA, Region 5-approved Generic QAPP. A summary of soil sample locations, numbers and field/analytical parameters is presented in Table 1. Proposed analytical methods for the soil samples are presented in Table 2.

Sediment Sampling

Sediment samples will be collected from the facility located at 1509 Courtland Street. Tentatively, one to two sediment samples will be collected from the bottom sediments of the settling pond. The depth of the settling pond is unknown. The settling pond is surrounded by vegetation and debris, and the banks of the settling pond are covered with oily residues; thus, collecting sediment samples from the settling pond may be difficult.

If the sediments are readily accessible and not covered by more than 6 inches of surface water, sediment samples will be collected using a pre-cleaned plastic spoon to transfer the sediment material directly into the sample container. If the sediments are covered by more than approximately 6 inches of surface water, a cut-off disposable bailer will be used to collect the sample. The sampling procedure to be used will consider the field conditions (e.g., grain size, depth of water, sediment compactness, etc.) at the time of sampling. Sediment samples to be analyzed for VOCs will be collected using an EnCore™ sampling device in accordance with SW-846 Method 5035 following the attached Draft TechLaw SOP. If the EnCore™ devices cannot be used to collect the sediment samples, the sediment samples will be collected in 4-ounce jars that are packed so that no headspace is present.

The sediment samples will be packaged and shipped to CTL in Berkeley, California in accordance with the shipping and custody procedures outlined in the TechLaw U.S. EPA, Region 5-approved Generic QAPP. Sediment samples will be analyzed for the constituents shown in Table 1 using the methods shown in Table 2.

The physical description and depth of collection for each sediment sample will be recorded in the field log book. Sample times, locations and requested laboratory analyses also will be recorded in the field log book and on the COC form.

Surface Water Sampling

Surface water samples may be collected from two Cozzi facilities.

- **9331 South Ewing Street**

One surface water sample will be collected in an area of pooled water, noted during the RCRA inspection, adjacent to the Chicago River. Collection of this sample will be dependent on site conditions (e.g., weather, amount of surface water present, etc.).

- **1509 West Cortland Street**

One surface water sample will be collected in an area of pooled water, noted during the RCRA inspection, adjacent to the Chicago River. Collection of this samples will be dependent on site conditions (e.g., weather, amount of surface water present, etc.). One surface water sample will be collected from the water in the settling pond. The settling pond is surrounded by vegetation and debris, and the banks of the settling pond are covered with oily residues; thus, collecting surface water samples from the settling pond may be difficult.

If present and accessible, surface water samples will be collected by submerging the sample containers directly into the surface water. Those areas only accessible from a distance will be sampled using a pre-cleaned beaker attached to an extendable aluminum pole.

The surface water samples will be packaged and shipped to CTL in Berkeley, California in accordance with the shipping and custody procedures outlined in the TechLaw U.S. EPA, Region 5-approved Generic QAPP. Surface water samples will be analyzed for the constituents shown in Table 1 using the methods shown in Table 2.

The physical description of each surface water sample will be recorded in the field log book. Sample times, locations and requested laboratory analyses also will be recorded in the field log book and on the COC form. Sample labels and sample tags will be completed and attached to the sample containers in accordance with the TechLaw U.S. EPA, Region 5-approved Generic QAPP.

Quality Control Samples

During the collection of waste, soil, surface water and sediment samples at the three Cozzi facilities, the TechLaw sampling teams will collect one field duplicate for every 10 samples, per matrix collected, with a minimum of one field duplicate sample matrix. In addition, field blanks will be collected at a frequency of 1 for every 10 samples, with a minimum of one equipment blank per type of equipment. Duplicates and equipment blanks will be analyzed for the same constituents as the associated samples.

The laboratory, CTL, will prepare and ship trip blanks, consisting of two 40-milliliter septum capped vials of analyte-free, deionized water. Trip blanks will be placed in the sampling coolers,

which are to contain samples to be analyzed for VOCs, prior to sample collection. TechLaw personnel will handle and ship the trip blanks in the same manner as all aqueous VOC samples. The trip blanks will be analyzed in the laboratory for VOCs.

One matrix spike/matrix spike duplicate (MS/MSD) sample will be collected for every 20 samples of each matrix collected. Because there will be no more than 20 samples collected for each matrix, one MS/MSD sample will be collected for each media being sampled (i.e., waste, soil, sediment and surface water), which will be analyzed for the same constituents as those samples of the same matrix.

Laboratory quality control requirements are outlined in the TechLaw U.S. EPA, Region 5-approved Generic QAPP. A summary of the QC sample requirements is presented in Table 4, and the analytical methods that will be used for the QC samples are listed in Table 2.

Sample Collection, Preparation, Custody and Shipment

The samples collected by TechLaw will remain in the custody of TechLaw field personnel until relinquished for shipment to the analytical laboratory. The sample bottles will be appropriately labeled (i.e., label affixed directly on the face of the bottle) and tagged with U.S. EPA sample tags. A COC form will accompany the samples from the point of origin to the analytical laboratory. The samples will be collected in the containers specified in Section 6 of the U.S. EPA, Region 5-approved, TechLaw Generic QAPP. All samples will be collected in "certified-clean" sample containers obtained from CTL. All samples will be shipped via overnight carrier in coolers with affixed custody seals to Curtis and Tompkins, Ltd, 2323 5th Street, Berkeley, California, Attention: Carol Wortham at (510) 486-0900 (extension 101) and notification provided by facsimile at (510) 486-0532.

Investigation Derived Waste Management

It is not expected that any hazardous investigation derived waste will be produced. All disposable sampling equipment will be disposed as non-hazardous solid waste.

Analytical Requirements

The analytical and QA/QC requirements, including calibration procedures and frequencies, for the laboratory are outlined in the U.S. EPA, Region 5-approved, TechLaw Generic QAPP. Analytical reporting limits are based on SW-846 requirements. The analytical methods and sample container, preservation and holding time requirements are shown in Table 2.

Data Validation

Analytical data will be generated by the laboratory and provided to TechLaw in conformance with Contract Laboratory Program-like reporting protocols. At the request of the U.S. EPA

Work Assignment Manager (EWAM) and/or the U.S. EPA Technical Lead, the resulting data may undergo up to a 100 percent data validation effort by a member of the TechLaw Team, who will be independent of the sampling team. The U.S. EPA Technical Lead will determine the exact level of data validation to be performed following the receipt of the analytical results. Data will be validated in conformance with the Functional Guidelines for Organic and Inorganic Data Validation. Specific data package and data validation requirements are outlined in the U.S. EPA Region 5-approved, TechLaw Generic QAPP.

Project Schedule and Report Deliverables

The sampling activities will be initiated on or about September 29, 1998, and are expected to continue for approximately four days. A draft sampling report, which will include the analytical results of the laboratory analyses, will be submitted to U.S. EPA, Region 5, within seven calendar days after receiving the laboratory data from CTL. A data validation report will be generated within 14 days of receiving the laboratory data package. Within 14 days of the receipt of the data validation report, the sampling report will be finalized to incorporate relevant information from the data validation report and U.S. EPA comments. The final sampling report will be submitted to the EWAM. As discussed with the EWAM, the report will include the waste, soil, surface water and sediment analyses. This report will detail the sampling locations and techniques, any problems that were encountered during the sampling activities, and observations made in the field, including photographs taken during the sampling activities.

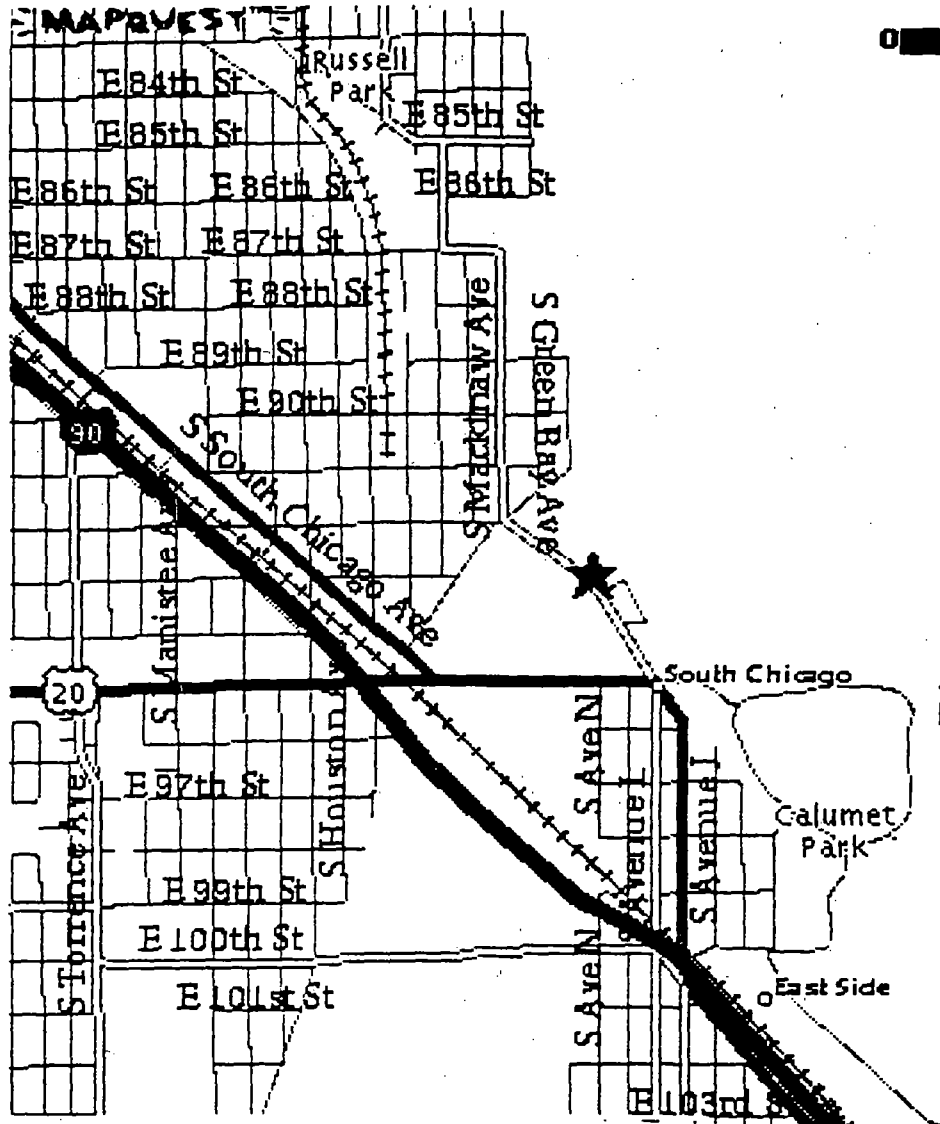
Project Organization

The EWAM for this project is Mr. Brian Freeman. The U.S. EPA Technical Lead and RCRA representative is Mr. George Opek. The TechLaw WAM for this project is Ms. Patricia Brown-Derocher and the TechLaw Technical Lead for this project is Mr. Jeff Raines. TechLaw field sampling personnel are Mr. Raines (Team Leader and Site Safety Officer), Mr. Mike Powers and Mr. Anthony Mubiru. The analytical laboratory for this project is Curtis and Tompkins, Ltd., in Berkeley, California. Data validation will be performed by appropriately qualified members of the TechLaw Team.

FIGURE 1
SITE VICINITY MAPS

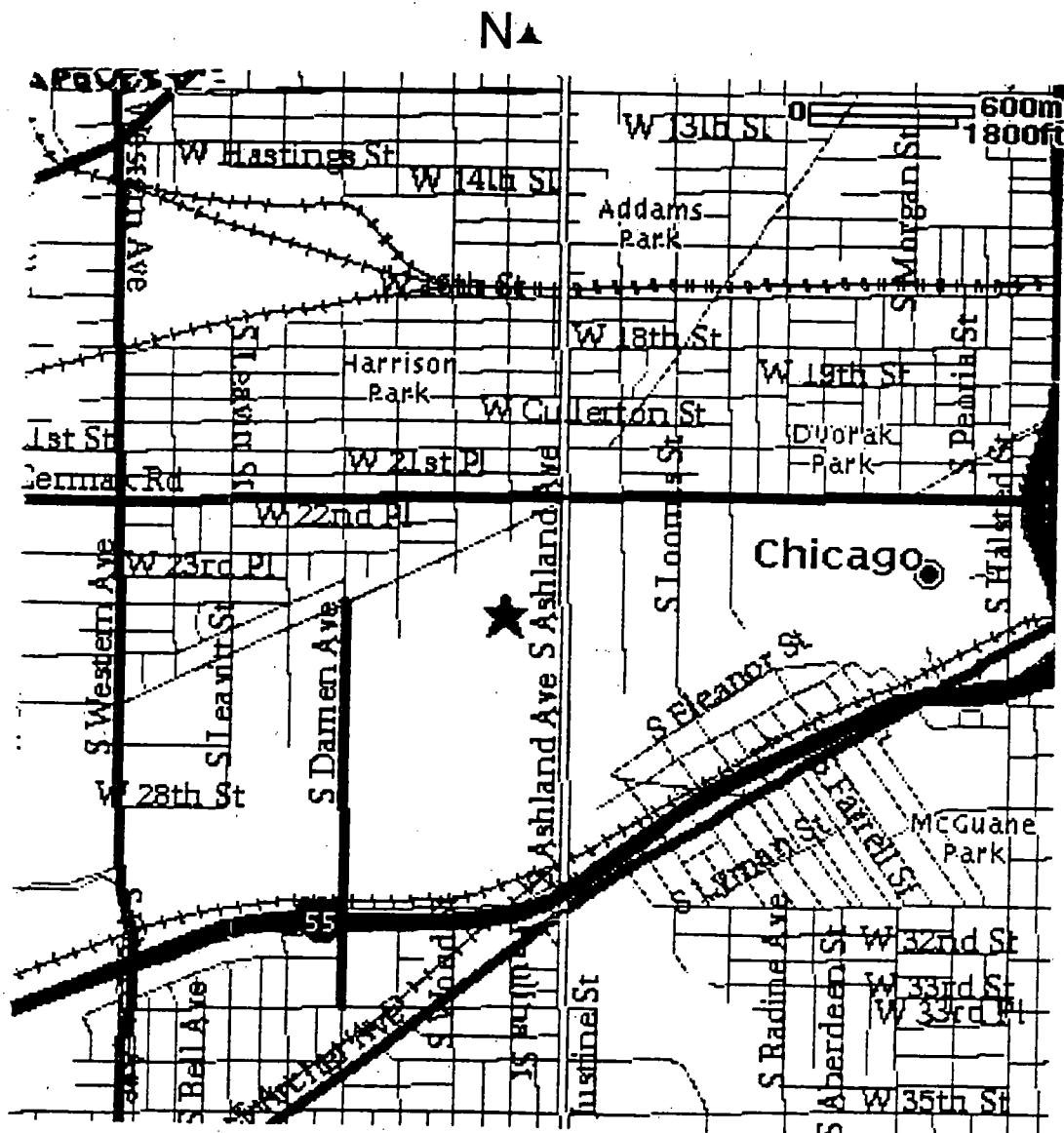
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Vicinity Map
9331 South Ewing Street

(Modified from Yahoo! Maps and Driving Directions at
<http://maps.yahoo.com>)



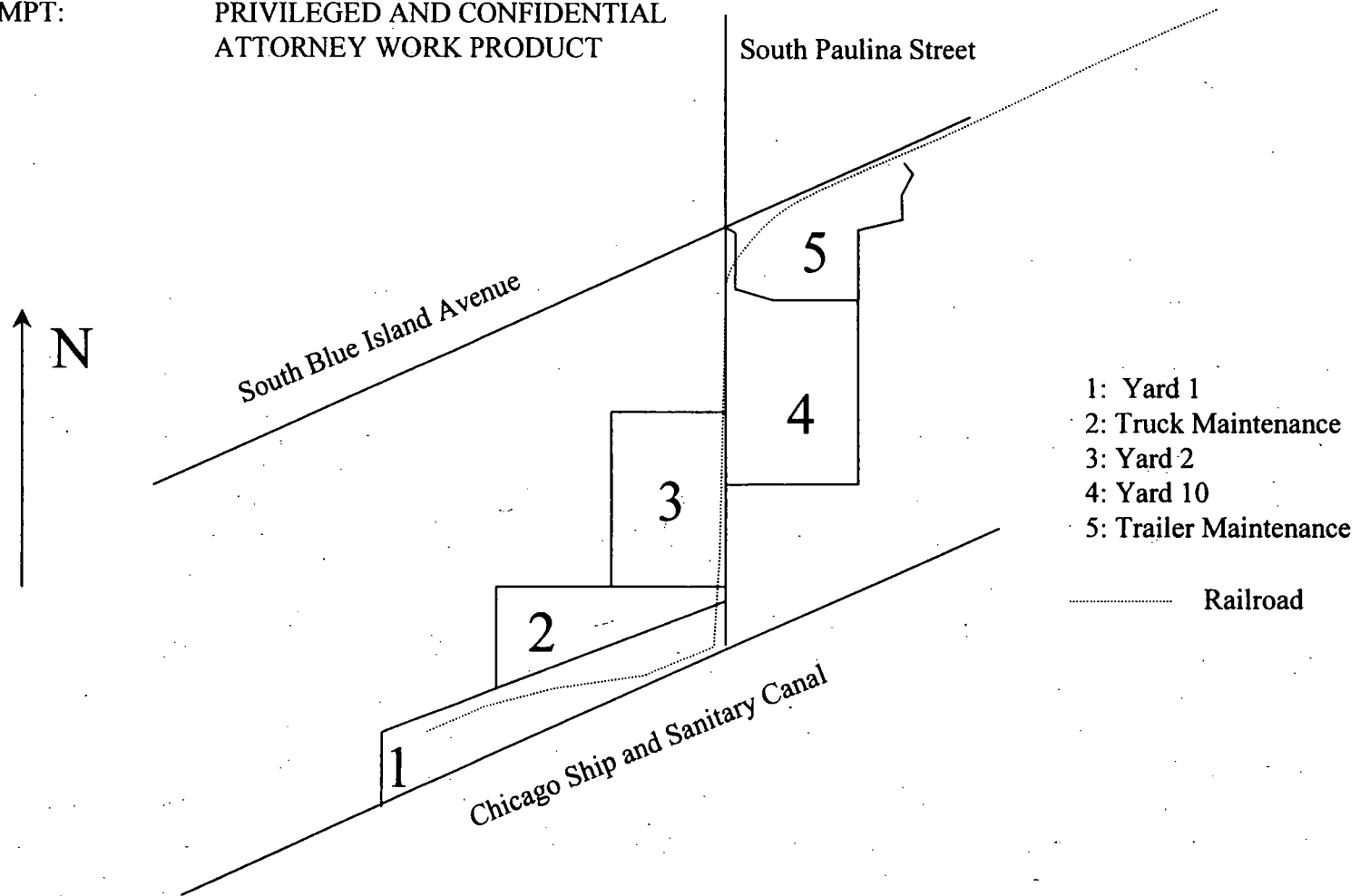
Vicinity Map
2500 South Paulina Street

(Modified from Yahoo! Maps and Driving Directions at
<http://maps.yahoo.com>)

FIGURE 2
SAMPLE LOCATION MAPS

FOIA EXEMPT:

PRIVILEGED AND CONFIDENTIAL
ATTORNEY WORK PRODUCT

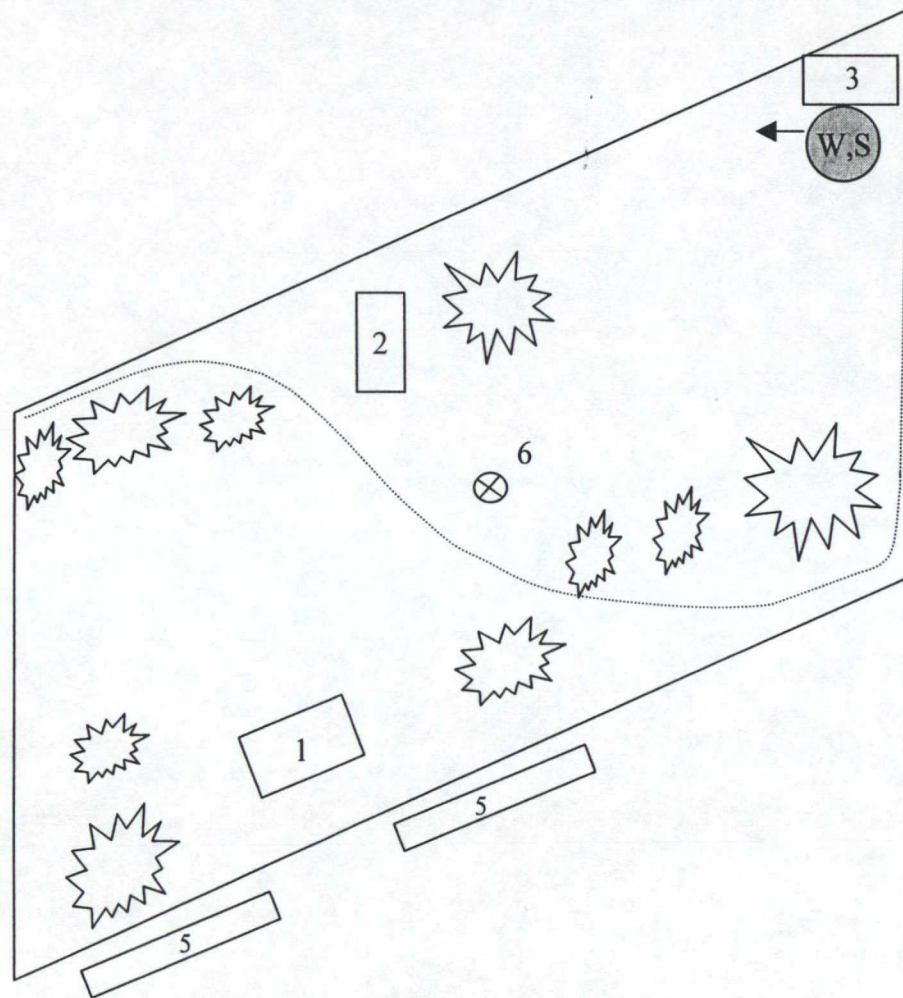
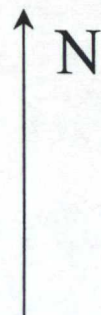


Not to Scale

Layout of Cozzi Iron and Metal
2500 South Paulina Street
Chicago, Illinois

FOIA EXEMPT:

PRIVILEGED AND CONFIDENTIAL
ATTORNEY WORK PRODUCT



- 1: Non-ferrous shredder
- 2: Baler
- 3: Mechanical Maintenance
- 4: Scrap Piles
- 5: Barges
- 6: Manhole where stormwater samples were collected



Sampling Location
W=Waste S=Soil
SS=Soil/Sediment
SW=Surface Water



Railroad



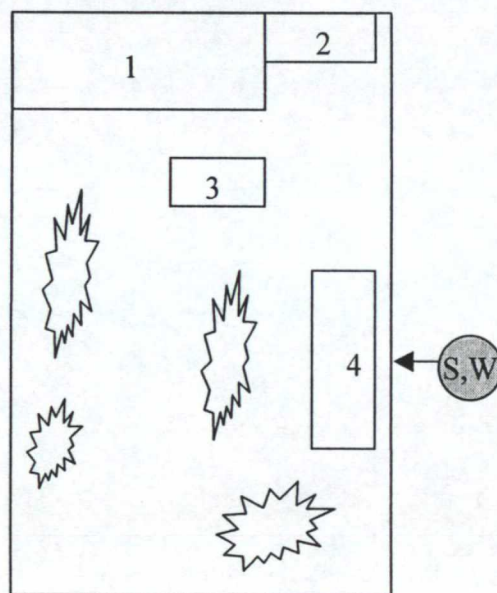
Scrap Pile

Not to Scale

Layout of Yard 1
Cozzi Iron and Metal
2500 South Paulina Street
Chicago, Illinois

FOIA EXEMPT:

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ATTORNEY WORK PRODUCT



- 1: Warehouse
- 2: Office
- 3: Baler
- 4: Shear

Sampling Location
W=Waste S=Soil
SS=Soil/Sediment
SW=Surface Water



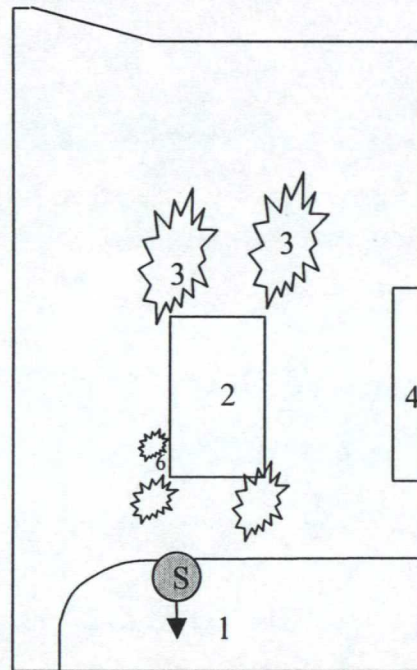
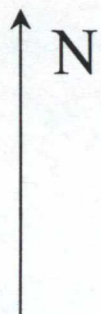
Scrap Pile

Layout of Yard 2
Cozzi Iron and Metal
2500 South Paulina Street
Chicago, Illinois

Not to Scale

FOIA EXEMPT:

PRIVILEGED AND CONFIDENTIAL
ATTORNEY WORK PRODUCT



- 1: Uncontrolled Dump
- 2: West Shredder
- 3: Raw Material (white goods, etc.)
- 4: Crushed cars
- 5: Ferrous Scrap
- 6: Non-Ferrous/ASR



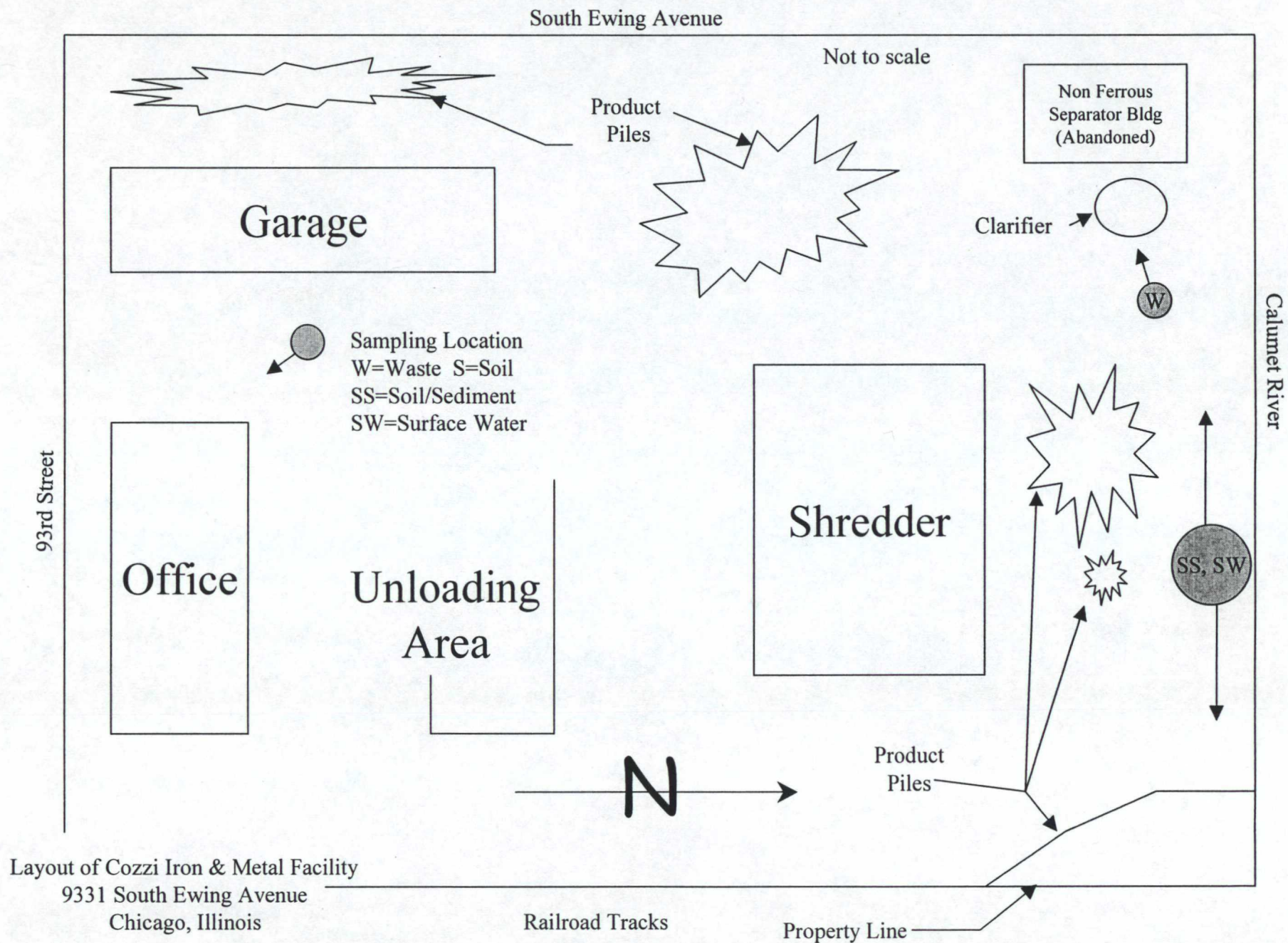
Sampling Location
W=Waste S=Soil
SS=Soil/Sediment
SW=Surface Water

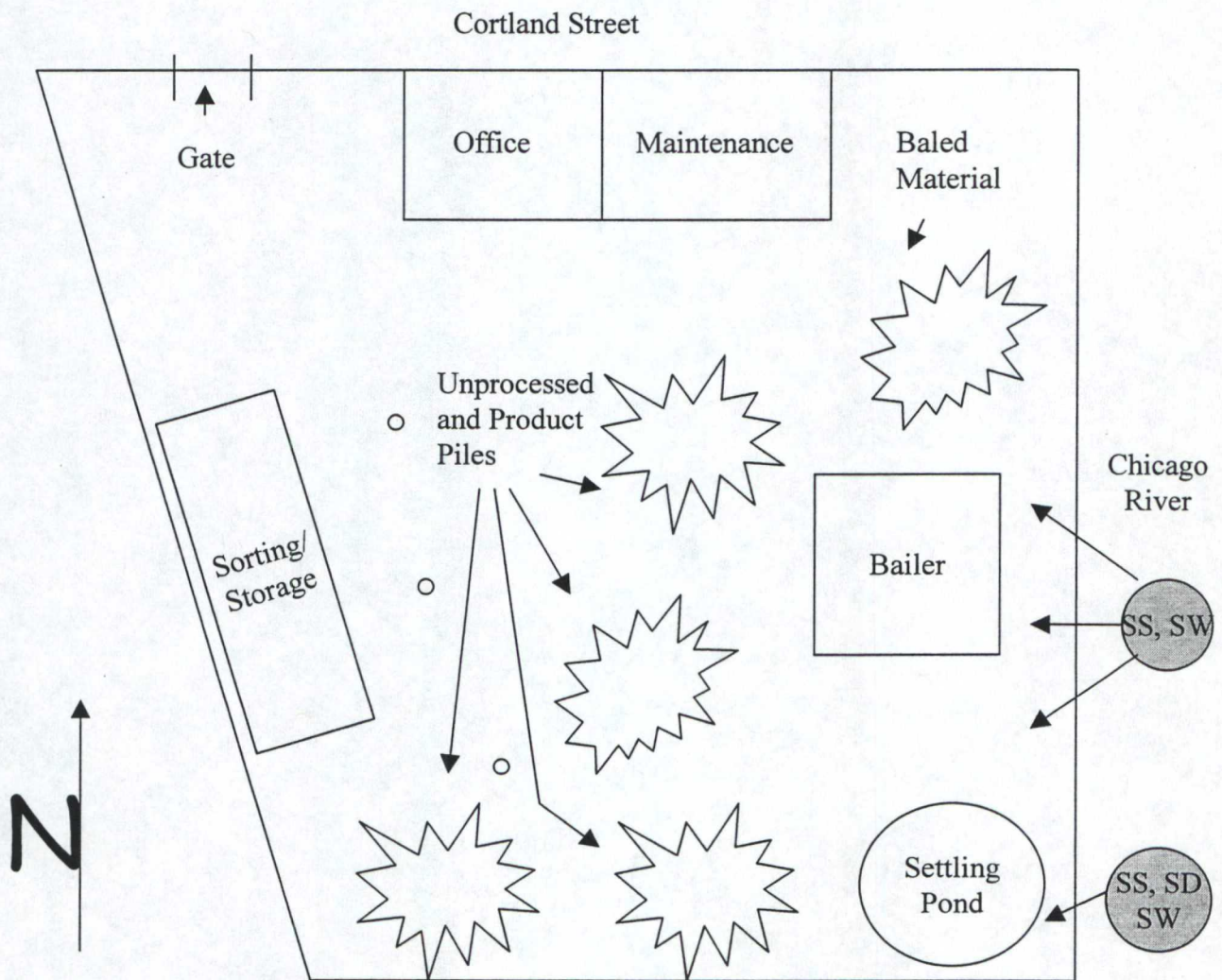


Scrap Pile


Not to Scale

Layout of Yard 10
Cozzi Iron and Metal
2500 South Paulina Street
Chicago, Illinois





Layout of Cometco Corporation
1509 West Corporation
Chicago, Illinois

 Sampling Location
 W=Waste S=Soil
 SS=Soil/Sediment
 SW=Surface Water
 SD=Sediment

Not to scale

TABLE 1
SAMPLE COLLECTION SUMMARY

TABLE 1
SAMPLE COLLECTION SUMMARY

Cozzi Facility	Area	Matrix ¹	No. of Locations	Sample Depths	Field Parameters	Analytical Parameters ²
2500 Paulina Street	Yard No. 1 AST	Waste	1	NA	PID Screening - VOCs	TCLP Metals and VOCs, SVOCs, Ignitability
		Soil	1	0 - 6"	PID Screening - VOCs	TCLP Metals and VOCs, SVOCs
	Yard No. 2 Metal Shear Hydraulic Pump Room	Waste	1	NA	PID Screening - VOCs	TCLP Metals and VOCs, SVOCs, Ignitability
		Soil	1	0 - 6"	PID Screening - VOCs	TCLP Metals and VOCs, SVOCs
		Waste	1	NA	PID Screening - VOCs	TCLP Metals and VOCs, SVOCs
	Yard No. 10	Soil	2 - 3	0 - 6"	PID Screening - VOCs	TCLP Metals and VOCs, SVOCs
9331 South Ewing Street	Clarifier	Waste	1	NA	PID Screening - VOCs	TCLP Metals and VOCs, SVOCs, Ignitability
	Pooling Water Adjacent to the Chicago River	Soil/Sed SW	1 - 2 1	0 - 6" Surface	PID Screening - VOCs None	TCLP Metals and VOCs, SVOCs TCLP Metals and VOCs
1509 West Cortland Street	Pooling Water Adjacent to the Chicago River	Soil/Sed	1 - 2	0 - 6"	PID Screening - VOCs	TCLP Metals and VOCs, SVOCs
		SW	1	Surface	None	TCLP Metals and VOCs
	Settling Pond	Soil/Sed	1 - 2	0 - 6"	PID Screening - VOCs	TCLP Metals and VOCs, SVOCs
		Sediment	1 - 2	NA	PID Screening - VOCs	TCLP Metals and VOCs, SVOCs
		SW	1 - 2	NA	None	TCLP Metals and VOCs

¹ For surface water, only if present.

² TechLaw will be prepared to collect samples for all of these analyses. As described in the accompanying text, the actual parameters will be finalized based on field conditions.

NA = Not Applicable

PID = Photoionization Detector

Sed = Sediment

SVOCs = Semivolatile Organic Compounds

SW = Surface Water

TCLP = Toxicity Characteristic Leaching Procedure

VOCs = Volatile Organic Compounds

TABLE 2

**ANALYTICAL METHODS AND SAMPLE CONTAINER,
PRESERVATION AND HOLDING TIME REQUIREMENTS**

TABLE 2

ANALYTICAL METHODS AND SAMPLE CONTAINER, PRESERVATION AND HOLDING TIME REQUIREMENTS

Parameters	Analytical Method	Matrix	Holding Time	Container	Preservative
TCLP VOCs	SW-846 Method 5035	Soil, Sediment	48 Hours to Extraction	3 EnCore™ sampling devices	Cool to 4° C
	SW-846 Method 8260B	Waste Surface Water	14 Days 14 Days	2 4-ounce glass jars with SC 2 40-ml vials with septum caps	Cool to 4° C Cool to 4° C
SVOCs	Prep: SW-846 Method 3510C Anal: SW-846 Method 8270C	Surface Water	7 Days to Extraction, 40 Days to Analysis	2 1-liter amber glass bottles	Cool to 4° C
	Prep: SW-846 Method 3550C Anal: SW-846 Method 8270C	Waste, Soil, Sediment	14 Days to Extraction, 40 Days to Analysis	2 4-ounce glass jars with SC	Cool to 4° C
TCLP Metals	Prep: SW-846 Method 1311 Anal: SW-846 Method 6010B	Waste, Soil, Sediments	6 months	2 4-ounce glass jar	Cool to 4° C
	Prep: SW-846 Method 1311 Anal: SW-846 Method 6010B	Water	6 months	1 1000-ml poly bottle	Cool to 4° C
TCLP Mercury	Prep: SW-846 Method 1311 Anal: SW-846 Method 7471A	Waste, Soil, Sediments	28 days	2 4-ounce glass jar (same container as metals)	Cool to 4° C
	Prep: SW-846 Method 1311 Anal: SW-846 Method 7471A	Water	28 days	1 1000-ml poly bottle (same container as metals)	Cool to 4° C
Ignitability	Prep: EPA 1010 Anal: EPA 1010	Waste	No Recommended Holding Time	4-ounce glass jar	Cool to 4° C

HCl = Hydrochloric Acid

ml = milliliter

SC = Septum Cap

SVOCs = Semivolatile Organic Compounds

TCLP = Toxicity Characteristic Leaching Procedures

VOCs = Volatile Organic Compounds

TABLE 3
SAMPLING EQUIPMENT TO BE USED TO COLLECT
ENVIRONMENTAL SAMPLES

TABLE 3**SAMPLING EQUIPMENT TO BE USED TO COLLECT ENVIRONMENTAL SAMPLES**

Sample Media	Sampling Equipment
Waste	Disposable plastic beaker attached to a stainless steel pole or a stainless-steel Petite Ponar® or pole-mounted Ekman® dredge deployed from above or disposable bailer or pre-cleaned spoon (plastic or metal)
Soil	VOC: EnCore™ sampler (25 gram) if possible, 4-ounce glass jar otherwise All Others: Pre-cleaned spoon Sample location cleared with shovel or pickax
Sediment	VOC: EnCore™ sampler (25 gram) if possible, 4-ounce glass jar otherwise All Others: Pre-cleaned spoon
Surface Water	Disposable plastic beaker attached to a stainless steel pole if necessary or disposable bailer

VOC = Volatile Organic Compounds

TABLE 4
QUALITY CONTROL SAMPLE COLLECTION SUMMARY

TABLE 4**QUALITY CONTROL SAMPLE COLLECTION SUMMARY**

QUALITY CONTROL SAMPLE	REQUIREMENTS	CONTAINER	PRESERVATIVE
Trip Blanks	1 per cooler	2 40-ml vials with septum caps	HCl
Field Blanks	1 per type of sampling equipment	2 40-ml vials with septum caps, 1-Liter amber 1-Liter poly	HCl for 40-ml vials, HNO ₃ for 1-Liter poly
Field Duplicates	1 per matrix for every 10 samples collected	Variable depending on analysis requested and matrix. For specific information refer to Table 2.	Water: Variable depending on the analysis requested and matrix of sample Soil/Sediment/Waste: None
MS/MSDs	1 per matrix for every 20 samples collected	Water: 2 40-ml vials with septum lids, 1 1-Liter amber, 1 1-Liter poly Soil/Sediment/Waste: 2 4-ounce jars Waste: 1-Liter amber and 1 4-oz jar (Organic analysis only for all media)	Water: HCl for 40-ml vials HNO ₃ for poly Soil/Sediment/Waste: None

HCl = Hydrochloric Acid

HNO₃=Nitric Acid

ml = milliliter

MS/MSDs = Matrix Spike/Matrix Spike Duplicate

TABLE 5
SAMPLE COLLECTION SUMMARY

TABLE 5
SAMPLE COLLECTION SUMMARY

MATRIX	NUMBER OF SAMPLES	MS/MSD	ANALYSES	CONTAINERS (PER SAMPLE) ²
Soil	14	2	TCLP VOC TCLP Metals SVOC	Three 25-gram EnCore ⁵ One 4-ounce glass for Metals/SVOC
Waste Liquids ⁴ / Sludge	5	2	TCLP VOC TCLP Metals SVOC Flash Point	One 4-ounce glass and One 1-Liter amber glass for VOC/SVOC/Metals One 4-ounce glass (sludge) or One 250-ml Poly (liquids)
Water	5	1	VOC Metals	3 40-ml VOC vials ¹ 1 1000-ml Poly
Blanks ³	10 3		VOC Metals	3 40-ml VOA vials 1 1000-ml Poly
Totals				48 EnCore 51 40-ml VOC vials (12 prefilled for travel blanks) 10 1000-ml Poly 7 250-ml Poly 55 4-ounce glass (some for moisture content)

- (1) Six additional vials for MS/MSD
- (2) TechLaw will supply the EnCores, Laboratory to supply container for %moisture determination
- (3) Laboratory to supply four sets of VOC vials filled with analyte-free water as travel blanks, equipment blanks will be filled in field.
- (4) Waste Liquids will be motor oil
- (5) If soils cannot be sampled with EnCore, use a 4-ounce glass jar; also requires sample aliquot for moisture content

ATTACHMENT

**DRAFT TECHLAW STANDARD OPERATING PROCEDURES FOR
SAMPLING FOR VOLATILE ORGANIC COMPOUNDS IN SOIL PROCEDURES
SAMPLING WITH A SYRINGE AND PRE-PRESERVED VIALS
OR WITH AN ENCORE™ DEVICE**

**TECHLAW ENVIRONMENT, HEALTH AND SAFETY PRACTICE
STANDARD OPERATING PROCEDURES**

**SAMPLING FOR VOLATILE ORGANIC COMPOUNDS
IN SOIL PROCEDURES - SAMPLING WITH A
SYRINGE AND PRE-PRESERVED VIALS OR WITH AN
EN-CORE DEVICE**

**SOP Number: 07-08-00
Effective Date: 09/21/98**

Technical Approval: _____ Date: _____

QA Management Approval: _____ Date: _____

SOP Description

This Standard Operating Procedure (SOP) describes the procedure to be used by TechLaw Environment, Health and Safety (EH&S) staff when collecting soil samples for volatile analysis in accordance with the required preservation procedures described in the June 13, 1997 Update III to SW-846.

Scope

This procedure is appropriate for collecting unconsolidated soils and other relatively fine-grained solids samples. This SOP applies to the collection of both low and high level contaminated soil samples. It should be noted that the United States Environmental Protection Agency (EPA) recommends that all soil samples for volatile analysis be preserved in some manner. However, some states have not approved the following procedures.

Introduction

Update III of SW-846 deleted the "low concentration of volatiles in soil" sample collection/laboratory procedure that involved filling an unpreserved sample container to capacity, leaving no headspace available to collect volatile organic vapors. This traditionally implemented procedure was replaced by procedures which use either specified equipment or matrix stabilizing preservatives (methanol or sodium bisulfite) to reduce volatilization of the VOCs in the soil sample.

This method applies to the collection of soil samples. The method may be applied to sediment or waste samples, if appropriate.

Two sample collection procedures are described in this SOP. The first involves collecting soil samples in prepreserved containers. Low level samples are preserved with sodium bisulfite. High level samples are preserved with methanol. A methanol preserved sample should always be collected when sampling for low level contamination. Additionally, if the extent of contamination is unknown, both sodium bisulfite and methanol preserved samples must be collected.

**TECHLAW ENVIRONMENT, HEALTH AND SAFETY PRACTICE
STANDARD OPERATING PROCEDURES**

**SAMPLING FOR VOLATILE ORGANIC COMPOUNDS
IN SOIL PROCEDURES - SAMPLING WITH A
SYRINGE AND PRE-PRESERVED VIALS OR WITH AN
EN-CORE DEVICE**

**SOP Number: 07-08-00
Effective Date: 09/21/98**

The second method is for samples that will be collected in the field using an En-core, or similar, device to be prepared for analysis in the laboratory. Three En-core samples must be taken per sampling location. Additional En-cores are required for spike and duplicate samples.

General Procedures

Related SOPs

This SOP is to be used in conjunction with the other relevant or applicable SOPs found in the following SOP categories:

<u>Section No.</u>	<u>Section Title</u>
01	General Procedures
02	Field Procedures
03	Field Documentation Procedures
04	Packaging and Shipping Procedures
05	Field Equipment Operation and Maintenance Procedures
07	Soil/Sediment Sampling and Analysis Procedures
09	Health and Safety Procedures
11	Quality Assurance Procedures

Equipment and Apparatus

- **Soil Syringe** - consists of a plastic tube equipped with a plunger mechanism. The diameter of the syringe body should be consistent along its length such that there is no widening or narrowing occurring at the opening of the syringe. The opening shall be narrower than the mouth of the sample container. The plunger mechanism shall make a good seal with the inside of the syringe body and be capable of extruding the soil that is being sampled. The syringe shall be made entirely of inert materials, such as plastic or stainless steel, that will not introduce contaminants to the collected sample. The syringe shall have a volume of approximately 10 grams.
- **En-Core sampling device** - an appropriate number of U.S. EPA approved En-core sampling devices (obtained from EnNovative Technologies, Inc., 888/411-0757) or equivalent should be available for sample collection if samples will be collected using the En-core method. At minimum, three En-core samples must be taken per sampling location.

**TECHLAW ENVIRONMENT, HEALTH AND SAFETY PRACTICE
STANDARD OPERATING PROCEDURES**

**SAMPLING FOR VOLATILE ORGANIC COMPOUNDS
IN SOIL PROCEDURES - SAMPLING WITH A
SYRINGE AND PRE-PRESERVED VIALS OR WITH AN
EN-CORE DEVICE**

SOP Number: 07-08-00

Effective Date: 09/21/98

- **Balance** - capable of weighing the soil sample and the sample collection vial to the nearest 0.01 gram. The balance must be capable of weighing a mass of up to 200 grams to accommodate the maximum expected sample container/preservative/soil weights.
- **Balance weights** - reference weights used to calibrate the balance in the field.
- **Pre-prepared sample containers** - laboratory supplied vials containing methanol (high level) or sodium bisulfate (low level), and surrogates appropriate for preservation and analysis by EPA Method 5035.
- **Moisture-content sample containers** - precleaned 40 - 60 ml, or smaller, empty sample containers.
- **Field Logbook** - to record data.

Pre-Sampling Procedures

- Place balance on a level surface and calibrate according to the manufacturers specifications.
- Remove the laboratory supplied sample container which contains the appropriate preservative (sodium bisulfate for low level, methanol for high level) and surrogates from the cooler where it is being maintained at 4°C. Inspect the container to assure that it is sealed properly, is in good condition, and is affixed with a label or tag indicating a laboratory identification and container weight. The container weight indicated by the laboratory should reflect the weight of the container including the lid, septa, label, preservative, and surrogate that have been added to the container.
- Leaving the container sealed, place the sample container on the balance and record, in the logbook, the weight of the laboratory supplied sample container to the nearest 0.01 grams. If the container does not weigh within 0.2 grams of the laboratory recorded container weight, discard the container, retrieve another one from the cooler and repeat comparison as above.
- Place the container back in the cooler.

**TECHLAW ENVIRONMENT, HEALTH AND SAFETY PRACTICE
STANDARD OPERATING PROCEDURES**

**SAMPLING FOR VOLATILE ORGANIC COMPOUNDS
IN SOIL PROCEDURES - SAMPLING WITH A
SYRINGE AND PRE-PRESERVED VIALS OR WITH AN
EN-CORE DEVICE**

**SOP Number: 07-08-00
Effective Date: 09/21/98**

Sampling Procedures

For the collection of soil samples to be preserved in the field:

- If collecting subsurface samples, retrieve the soil sample using one of the methods specified in the appropriate TechLaw SOP for Split-Barrel Sampling (SOP No. 07-04-XX); Soil Sampling with an Auger (SOP No. 07-06-XX); or Soil Sampling with a Shelby Tube (SOP No. 07-05-XX).
- If collecting a surface soil sample, remove surface vegetation and debris from the area to be sampled.
- Remove the disposable plastic syringe from protective wrap.
- With the plunger depressed, push the syringe into an undisturbed portion of the soil to be sampled. Collect 5 grams of soil into the body of the syringe. Note: If unsure of the syringe volume that equates to 5 grams of soil, the sampler may use a practice syringe to collect and weigh various amounts of soil until the sampler is comfortable with the volume that is necessary for the sample.
- Remove the syringe from the soil in a manner to cause as little disturbance as possible.
- Remove the sample container from the cooler.
- Open the sample container and, as quickly as possible, holding the syringe and soil sample over the open top of the sample container, depress the plunger on the syringe to extrude the sample into the container.
- Seal the container.
- Wipe off the VOC sample container with a clean paper towel to remove any particles or debris that may have coated the outside of the container.
- Verify that the scale is placed on a level surface and that the scale is zeroed out.

**TECHLAW ENVIRONMENT, HEALTH AND SAFETY PRACTICE
STANDARD OPERATING PROCEDURES**

**SAMPLING FOR VOLATILE ORGANIC COMPOUNDS
IN SOIL PROCEDURES - SAMPLING WITH A
SYRINGE AND PRE-PRESERVED VIALS OR WITH AN
EN-CORE DEVICE**

**SOP Number: 07-08-00
Effective Date: 09/21/98**

- Weigh the container. If the container weight reflects that less than 4.5 grams of soil, or more than 5.5 grams of soil were added to the container, the sample and container should be discarded and another sample should be collected. Additionally, the soil plug must be fully immersed in the preservative to eliminate the loss of volatiles to headspace.
- Fill out label and/or sample tag and attach to the container.
- Place in cooler and maintain sample at 4 °C.
- Package label and prepare for shipment as specified in SOP No. 02-05-XX.
- Using a stainless steel or disposable plastic spoon, collect additional sample and fill an unpreserved, laboratory-supplied sample container to capacity (i.e., with no head space) to be used by the laboratory to determine the moisture content of the sample. A 2-ounce or 4-ounce sample container is acceptable for this sample. Note: If soil from the sampling location will be collected in other sample containers for analysis for parameters other than VOCs, one of these other sample containers may suffice for the laboratory determination of moisture content if the sample container is filled to capacity with no head space.

For the determination of VOCs in soil using the En-core soil sampler:

- Remove the En-core sampler from protective wrap/sample bag.
- Attach the En-core sampler to En-core T-handle. The En-core sampler should have the plunger in the down position.
- With the En-core sampler's plunger in the down position, push the En-core sampler into the soil to be sampled and collect the sample with minimal disturbance. If the soil contains debris that inhibits the collection in the above manner, a decontaminated stainless steel spoon can be used to fill the En-core sampler. The soil must be tightly packed in the En-core if this procedure is to be used. This procedure has been discussed with both the EPA and the laboratory and is the accepted method when problem soil is encountered.
- Wipe the end of the En-core sampler with a clean paper towel to ensure that no debris is present on the threads where the cap attaches. Cap the En-core sampler and verify that cap is seated properly. If the cap is not attached properly, sample integrity is compromised.
- Fill out label and/or sample tag and attach to the En-core sampler.

**TECHLAW ENVIRONMENT, HEALTH AND SAFETY PRACTICE
STANDARD OPERATING PROCEDURES**

**SAMPLING FOR VOLATILE ORGANIC COMPOUNDS
IN SOIL PROCEDURES - SAMPLING WITH A
SYRINGE AND PRE-PRESERVED VIALS OR WITH AN
EN-CORE DEVICE**

**SOP Number: 07-08-00
Effective Date: 09/21/98**

- Place En-core sampler back into En-Core bag and fill out label on bag.
- Place in cooler and maintain sample at 4 °C.
- Package label and prepare for shipment as specified in SOP No. 02-05-XX.
- Using a stainless steel or disposable plastic spoon, collect additional sample and fill an unpreserved, laboratory-supplied sample container to capacity (i.e., with no head space) to be used by the laboratory to determine the moisture content of the sample. A 2-ounce or 4-ounce sample container is acceptable for this sample. Note: If soil from the sampling location will be collected in other sample containers for analysis for parameters other than VOCs, one of these other sample containers will suffice for the laboratory determination of moisture content if the sample container is filled to capacity with no head space.

Sample Shipment

Samples must be received by the laboratory within 24 hours of sample collection and the samples must be preserved by the laboratory within 48 hours of sample collection.

Contamination Control

Sampling containers and tools must be protected from sources of contamination prior to sampling and decontaminated prior to and between sampling locations as specified in SOP No. 02-03-XX, Equipment Decontamination. In addition, liquids and materials from decontamination operations must be handled in accordance with SOP No. 02-04-XX, Management of Investigation Derived Waste. Sample containers must also be protected from sources of contamination. Sampling personnel must wear chemical-resistant gloves when handling the sampling equipment and samples. Gloves must be decontaminated or disposed between samples.

Health and Safety

It is TechLaw's policy to maintain an effective program for control of employee exposure to chemical, radiological, and physical stress which is consistent with OSHA and other applicable and appropriate established standards and requirements.

All field personnel will be provided with appropriate protective clothing and safety equipment. At a minimum, this will include steel-toed shoes, safety glasses, and chemical-resistant gloves.

**TECHLAW ENVIRONMENT, HEALTH AND SAFETY PRACTICE
STANDARD OPERATING PROCEDURES**

**SAMPLING FOR VOLATILE ORGANIC COMPOUNDS
IN SOIL PROCEDURES - SAMPLING WITH A
SYRINGE AND PRE-PRESERVED VIALS OR WITH AN
EN-CORE DEVICE**

**SOP Number: 07-08-00
Effective Date: 09/21/98**

A site-specific health and safety checklist/plan must be developed by the field team leader or designee and approved by the EH&S Health and Safety Director or designee prior to implementation in the field. This checklist/plan must be reviewed prior to beginning work.

Any deviation(s) from an approved site-specific health and safety checklist/plan must be documented in the field logbook.

Special care must be taken when handling carbonaceous soils for low level analysis. Low level analysis requires that the samples be preserved with sodium bisulfite, which will effervesce when carbonaceous soils are added to the container. This off gassing can cause sample containers to burst.

QA/QC

The balance must be calibrated in accordance with the manufacturer's instruction manual, prior to daily use. Thereafter, the balance is to be checked periodically against calibration weights that bracket the expected value of the sample(s).

In addition to adhering to the specific requirements of this sampling protocol and any supplementary site-specific procedures, the minimum QA/QC requirements for this activity are listed below.

Control of Deviations

When feasible, any departure from specified requirements must be justified and authorized by the field team leader prior to deviating from the requirements. Deviations are to be sufficiently documented in the field logbook to allow repetition of the activity as actually performed.

Verification

Verification activities are required, including surveillance and periodic record audits. These activities are to be documented in the field logbook and will become part of the completed project records.

**TECHLAW ENVIRONMENT, HEALTH AND SAFETY PRACTICE
STANDARD OPERATING PROCEDURES**

**SAMPLING FOR VOLATILE ORGANIC COMPOUNDS
IN SOIL PROCEDURES - SAMPLING WITH A
SYRINGE AND PRE-PRESERVED VIALS OR WITH AN
EN-CORE DEVICE**

**SOP Number: 07-08-00
Effective Date: 09/21/98**

Field Documentation

A permanent record must be maintained for each sampling location in accordance with SOP No. 03-01-XX Maintenance of Field Logbook and SOP No. 03-02-XX Taking and Documenting Photographs. This permanent record is the field logbook, photographs, and in some instances, surveyed locations. Field documentation of soil sampling for VOCs using the procedures in this SOP also is required where personnel are conducting field oversight of other contractors on behalf of the client (e.g., EPA, DOE, or state agencies). Photographs should also be taken to document the sampling procedures used in the field. The record/logbook must include the following items:

- Time and date of sampling activity;
- Weather conditions;
- Personnel performing the sampling;
- Record of utility clearance;
- Sample identification number(s) and location(s) (surveyed if possible);
- Depths of soil samples;
- Any problems encountered during soil boring;
- Disposition of removed soil not collected as sample;
- Description of soil color, grain size, texture (e.g., sand, silt or clay), soil moisture;
- Documentation of the presence or absence of:
 - Organic material (e.g., leaves, roots, peat);
 - Anthropogenic (man-made) material;
 - Odors (e.g., organic, petroleum, solvent, putrid).
 - Field screening instrument results.

Comments and Notes

None at this time.

**TECHLAW ENVIRONMENT, HEALTH AND SAFETY PRACTICE
STANDARD OPERATING PROCEDURES**

**SAMPLING FOR VOLATILE ORGANIC COMPOUNDS
IN SOIL PROCEDURES - SAMPLING WITH A
SYRINGE AND PRE-PRESERVED VIALS OR WITH AN
EN-CORE DEVICE**

SOP Number: 07-08-00

Effective Date: 09/21/98

Attachments

None at this time.

References

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U.S. Environmental Protection Agency, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, Integrated Manual, SW-846 Update III, June 13, 1997.

U.S. Environmental Protection Agency, Clarification Regarding Use of SW-846 Methods Memorandum, August 7, 1998.